**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (withdrawn) A brazing material for joining titanium metals comprising;

54-76% by weight Ti, 12-24% by weight Ni and 12-22%Cu, wherein the Cu/Ni ratio is between 0.5 and 1.0.

2. (withdrawn) A brazing material as in claim 1, wherein said Ti, Ni, and Cu are in powder form with a particle size less than 60 microns.

3. (withdrawn) A brazing material as in claim 1, further comprising;

0.5-12% by wt. Zr, wherein the Cu/Ni ratio is between 0.5 and 1.0, and there is 42-76 wt% Ti.

4. (withdrawn) A braze material as in claim 3, wherein said Ti, Ni, Cu and Zr are in powder from with a particle size less than 60 microns.

5. (withdrawn) A brazing material for joining titanium metals comprising;

54-76% by weight Ti, 12-24% by weight Ni, 12-22% by weight Cu, and a precious metal (PM), wherein the (Cu+PM)/Ni ratio is between 0.5 and 1.0.

6. (withdrawn) A brazing material as in claim 5, wherein said Ti, Ni, Cu and PM are in particle form with a particle size less than 60 microns.

7. (withdrawn) A brazing material for joining titanium metals as in claim 5, further comprising;

0.5-12% by wt. Zr., 42-76 wt% Ti, 12-22% by weight Cu+PM, wherein the (Cu+PM)/Ni ratio between 0.5 and 1.0.

8. (withdrawn) A braze material as in claim 7, wherein said Ti, Ni, Cu, PM and Zr are in particle form with a particle size of less than 60 microns

9. (withdrawn) A brazing material for joining titanium metals comprising:

30-80 wt% Ti, 10-30 wt% Ni, 10-30 wt% Cu, and 1-20 wt% M, wherein M is selected from the group consisting of Fe, V, Cr, Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd, and Ge and any combinations thereof.

10. (withdrawn) A brazing material as in claim 9, wherein said Ti, Ni, Cu and M are in powder form and have a particle size less than 60 microns.

11. (withdrawn) A brazing material for joining titanium metals comprising

25-80 wt% Ti, 10-30 wt% Ni, 10-30 wt% Cu+PM, and 1-20 wt% M, wherein the (Cu+PM)/Ni ratio is between 0.8 and 1.0, and M is selected from the group consisting of Fe, V, Cr, Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd and Ge or any combinations thereof.

12. (withdrawn) A brazing material as in claim 11, wherein said Ti, Ni, Cu, PM and M are in powder form and have a particle size less than 60 microns.

13. (withdrawn) A brazing material as in claim 11, further comprising:

0.5-12% by wt. Zr, wherein there is 25-70 wt% Ti.

14. (withdrawn) A braze material as in claim 13 wherein said Ti, Ni, Cu, PM, M, and Zr are in powder form and have a particle size less than 60 microns.

15. (withdrawn) A braze material for joining titanium metals comprising (a) wt%Ti (b) wt% Ni (c) wt% Cu (d) wt% Al (d) wt% Si (d) wt% Nb (d) wt% Mo (d) wt% Co and (d) wt% Fe wherein (a) : (b) : (c) are in the ratio of 11: 5: 4 and (d) is between 0 to 10.

16. (withdrawn) A braze material as in claim 15, wherein said Ti, Ni, Cu Al, Si, Nb, Mo, Co and Fe are in powder form and have a particle size less than 60 microns.

17. (withdrawn) A braze material as in claim 15, wherein said Ti, Ni, Cu Al, Si, Nb, Mo, Co and Fe are in powder form and have a particle size less than 40 microns.

18. (original) A method of brazing a titanium metal comprising the steps of;

coating a braze material onto a base material, said braze material being a mixture of Ti, Cu, Ni powders comprising 25-80% by weight Ti, 12-24% by weight Ni, and 12-22%Cu, wherein the Cu/Ni is between 0.5 and 1.0;

placing said base material with said braze material in a vacuum furnace;

heating said braze material and said base material for a given braze time to achieve thermal stability between said braze material and said base material, said heating being up to a temperature that is not more than a braze temperature of said braze material; and

forming a braze joint between said braze material and said base material.

19. (original) A method as in claim 18, wherein said braze material is further comprised of a precious metal (PM), the (Cu+PM)/Ni ration is between 0.5 and 1.0, and there is 54-76% by weight Ti.

20. (withdrawn) A method as in claim 19, wherein said braze material is further comprised of a precious metal (PM) and Zr, said Ti being 42-76 wt%, said Ni being 12-24 wt%, said Cu + PM being 12-22 wt%, said Zr being 0.5-12 wt%, and the Cu/Ni ratio is between 0.75 and 1.0.

21. (withdrawn) A method as in claim 20, wherein said braze material is further comprised of 0.5-12% by wt. Zr.

22. (withdrawn) A method as in claim 21, wherein said braze material is further comprised of M, wherein M is selected from the group consisting of Fe, V, Cr, Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd, Ge or any combinations thereof.

23. (withdrawn) A method as in claim 22, wherein said braze material is comprised of 30-80 wt%Ti, 10-30 wt % Ni, 10-30% Cu, and 1-20 wt% M.

24. (original) A method as in claim 18, wherein said braze material is further comprised of (a) wt% Ti, (b) wt% Ni, (c) wt% Cu, (d) wt% Al, (d) wt% Si, (d) wt% Nb, (d) wt% Mo, (d) wt% Co and (d) wt% Fe, wherein (a) : (b) : (c) are in the ratio of 11: 5: 4 and (d) is between 0 to 10.

25. (withdrawn) A method as in claim 18, wherein said braze material is further comprised of PM and M powders and said Ti being 25-80 wt%, said Ni being 10-30 wt%, said Cu+PM being 10-30 wt%, and 1-20 wt% M.

26. (withdrawn) A method as in claims 25, wherein said M is selected from the group consisting of Fe, V, Cr, Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd, Ge or any combinations thereof.

27. (withdrawn) A method as in claim 18, wherein said braze material is further comprised of PM, Zr and M powders, said Ti being 25-70 wt%, said Ni being 10-30 wt%, said Cu + PM being 10-30 wt%, said Zr being 0.5-12 wt%, said M being 1-20 wt%, and the (Cu+PM)/Ni ratio is between 0.8 and 1.0.

28. (withdrawn) A method as in claim 27, wherein M is selected from the group consisting of Fe, V, Cr, Co, Mo, Nb, Mn, Si, Sn, Al, B, Gd and Ge or any combinations thereof.

29. (withdrawn) A method as in claim 24, wherein said braze material is further comprised of Ti, Ni, Cu, Al, Si, Nb, Mo, Co and Fe powders.

30. (withdrawn) A method of brazing a titanium metal comprising the steps of;

coating a first braze material onto a base material, said first braze material being a mixture of powders of Ti, Cu, Ni, PM, Zr, M comprising 20-80 wt% Ti, 10-30 wt% Cu, 10-30 wt % Ni, 0-20wt %PM, 0-20 wt% Zr, 0-20% M with a Ni/(Cu+PM) ratio between 0.77-0.93;

placing said base material with said braze material in a vacuum furnace;

performing a first heating of said braze material and said base material to achieve thermal stability between said braze material and base material, said first heating being up to a temperature that is not more than a first braze temperature of said braze material;

coating a second braze material onto said base material, said second braze material being a mixture of Ti, Ni, Cu, PM, Zr, M comprising 1-20 wt% more of PM, Zr, M or combinations thereof than said first braze;

performing a second heating of said second braze material and said base material up to a second braze temperature; and

forming a braze joint between said second braze and said base material.

31. (withdrawn) The method as in claim 30, wherein said base material is an isomorphous beta phase only titanium base material selected from the group consisting of Ti-15 V-3 Cr-3 Sn-3 Al, Ti-15Mo-3Nb -3Al – 0.2Si, and Ti-13 V-11 Cr-3 Al.

32. (withdrawn) The method as in claim 30, wherein said base material is a titanium metal selected from the group consisting of Ti-6Al-2Sn-4Zr-2Mo and Ti-3Al-2.5V.

33. (withdrawn) The method as in claim 30, wherein said second braze temperature is between 10 °C and 100 °C lower than the first braze temperature, and in the range 800-900°C.

34. (withdrawn) A method of brazing a titanium metal comprising the steps of;

coating a first braze material onto a base material, said first braze material being a mixture of powders of 20-80 wt% Ti, 10-30 wt% Cu, 10-30 wt % Ni, 0-20 wt% PM, 0-20 wt% Zr, 0-20 wt% M and a Ni/(Cu+PM) ratio between 0.77-0.93;

placing said base material with said braze material in a vacuum furnace;

performing a first heating of said braze material and said base material to achieve thermal stability between said braze material and base material, said first heating being up to a temperature that is not more than a first braze temperature of said braze material;

coating a second braze material onto said base material, said second braze material being a mixture of Ti, Ni, Cu, PM, Zr, M , said second braze material comprising 1-20 wt% more of PM, Zr, M or combinations thereof than said first braze;

performing a second heating of said braze material and said base material up to a second braze temperature; and

forming a braze joint between said second braze and said base material.

35. (withdrawn) The method as in claim 34, wherein said base material is an isomorphous beta phase only titanium base material selected from the group consisting of Ti-15 V-3 Cr-3 Sn-3 Al, Ti-15Mo-3Nb -3Al – 0.2Si, and Ti-13 V-11 Cr-3 Al.

36. (withdrawn) The method as in claim 34, wherein said base material is a titanium base material selected from the group consisting of Ti-6Al-2Sn-4Zr-2Mo and Ti-3Al-2.5V.

37. (withdrawn) The method as in claim 34, wherein said second braze temperature is between 10 °C and 100 °C lower than the first braze temperature, and in the range 800-900°C.

38. (withdrawn) A method of brazing a titanium metal within a heat exchanger comprising the steps of;

coating a first braze material onto a multitude of portions of a base material, said first braze material being a mixture comprising 20-80 wt% Ti, 10-

30 wt% Cu, 10-30 wt % Ni, 0-20 wt% PM, 0-20 wt% Zr, 0-20 wt% M and having a Ni/(Cu+PM) ratio between 0.77-0.93;

placing said base material with said first braze material in a vacuum furnace;

performing a first heating on said first braze material and said base material for ten minutes to achieve thermal stability between said braze material and said base material;

forming a multitude of braze joints between said first braze material and said base material;

examining said multitude of braze joints to determine whether a second brazing is desirable;

optionally performing a second brazing, wherein said second brazing comprises the steps of;

coating a multitude of selected portions of said base material with a second braze material, wherein said second braze material is a mixture of Ti, Ni, Cu, PM, Zr and M powders comprising 1-20 wt% more of PM, Zr, M or combinations thereof than said first braze;

placing said base material with said second braze material in a vacuum furnace;

performing a second heating on said second braze material and said base material for a given braze time of between 8 and 12 minutes to achieve thermal stability between said second braze material and base material, said heating being up to a temperature that is 10 to 100°C lower than first heating temperature of said second braze material; and

forming a braze joint between said second braze material and said base material.

39. (withdrawn) The method as in claim 38, wherein said base material is an isomorphous beta phase only titanium base material selected

from the group consisting of Ti-15 V-3 Cr-3 Sn-3 Al, Ti-15Mo-3Nb -3Al – 0.2Si, and Ti-13 V-11 Cr-3 Al.

40. (withdrawn) The method as in claim 38, wherein said base material is a titanium base material selected from the group consisting of Ti-6Al-2Sn-4Zr-2Mo and Ti-3Al-2.5V.

41. (withdrawn) The method as in claim 38, wherein said second braze temperature is 10 °C and 100 °C lower than the temperature of said first heating, and in the range 800-900°C.

42. (withdrawn) A method of brazing a titanium metal within a heat exchanger comprising the steps of;

coating a first braze material onto a multitude of portions of a base material, said first braze material being a mixture of powders with a particles between 1 and 20 microns, said powders being 20-80 wt% Ti, 10-30 wt% Cu, 10-30 wt % Ni, 0-20 wt% PM, 0-20 wt% Zr, 0-20 wt% M and having a Ni/(Cu+PM) ratio between 0.77-0.93;

placing said base material with said braze material in a vacuum furnace;

performing a first heating on said braze material and said base material for around ten minutes to achieve thermal stability between said braze material and base material said heating being initially to 800 to 870°C with a 5 to 15 min hold and then at a rate of 10°C/ min to a temperature between 880–920°C;

forming a multitude of braze joints between said braze material and said base material;

examining said multitude of braze joints to determine whether a second brazing is desirable;

optionally performing a second brazing, wherein said second brazing comprises the steps of;

coating a multitude of selected portions of said base material with a second braze material, wherein said second braze material is a mixture of Ti, Ni, Cu, PM, Zr and M powders having 1-20 wt% more of PM, Zr, M or combinations thereof than said first braze;

placing said base material with said second braze material in a vacuum furnace;

performing a second heating on said second braze material and said base material for a given braze time between 8 and 12 minutes to achieve thermal stability between said second braze material and said base material, said heating being initially to 770 to 860°C with a hold between 5 and 15 minutes and then at a rate of 10°C/min to between 800–910°C; and

forming a braze joint between said second braze material and said base material.

43. (withdrawn) The method as in claim 42, wherein said base material is a titanium base material selected from the group consisting of Ti-15 V-3 Cr-3 Sn-3 Al, Ti-15Mo-3Nb -3Al – 0.2Si, and Ti-13 V-11 Cr-3 Al.

44. (withdrawn) The method as in claim 42, wherein said base material is selected from the group consisting of Ti-6Al-2Sn-4Zr-2Mo and Ti-3Al-2.5V.